

oneM2M Multipurpose Service Layer Enabling Interoperability

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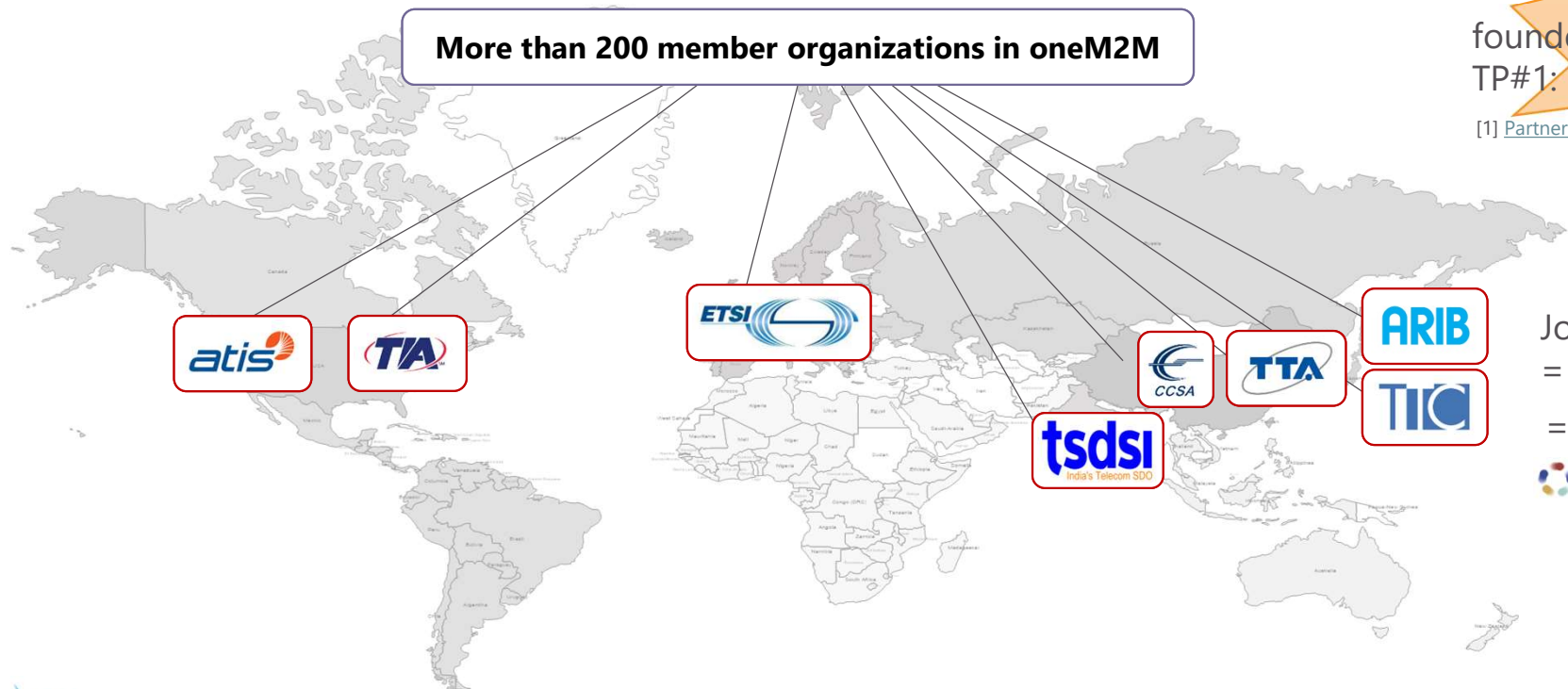
oneM2M Partnership Project



More than 200 member organizations in oneM2M


founded¹ July, 24th 2012
TP#1: Sep 24th-29th 2012

[1] [Partnership Agreement V 2.0](#) (Approved March 2013)



Join forces
=> reduce fragmentation
=> Reuse e.g.

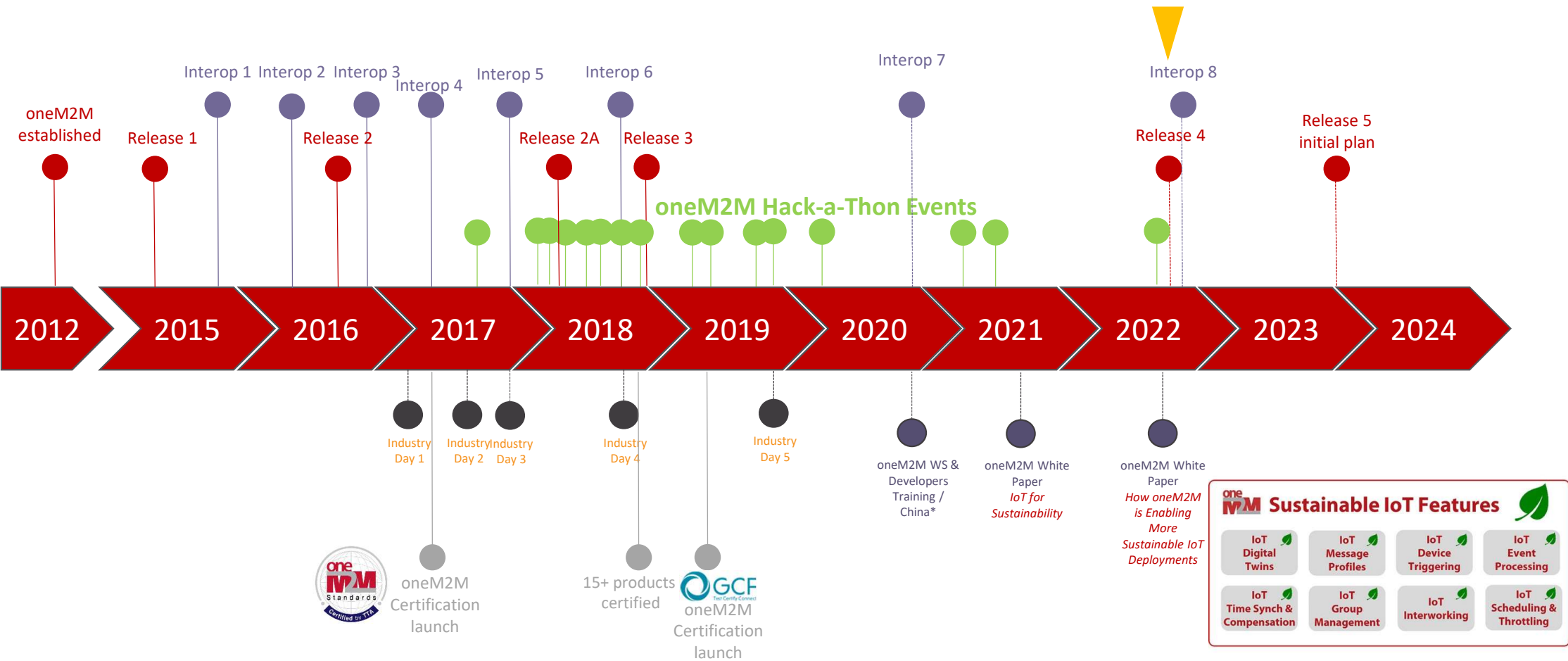


 e.g. Release 2 transposition
ITU-T SG20 Y.4500.x

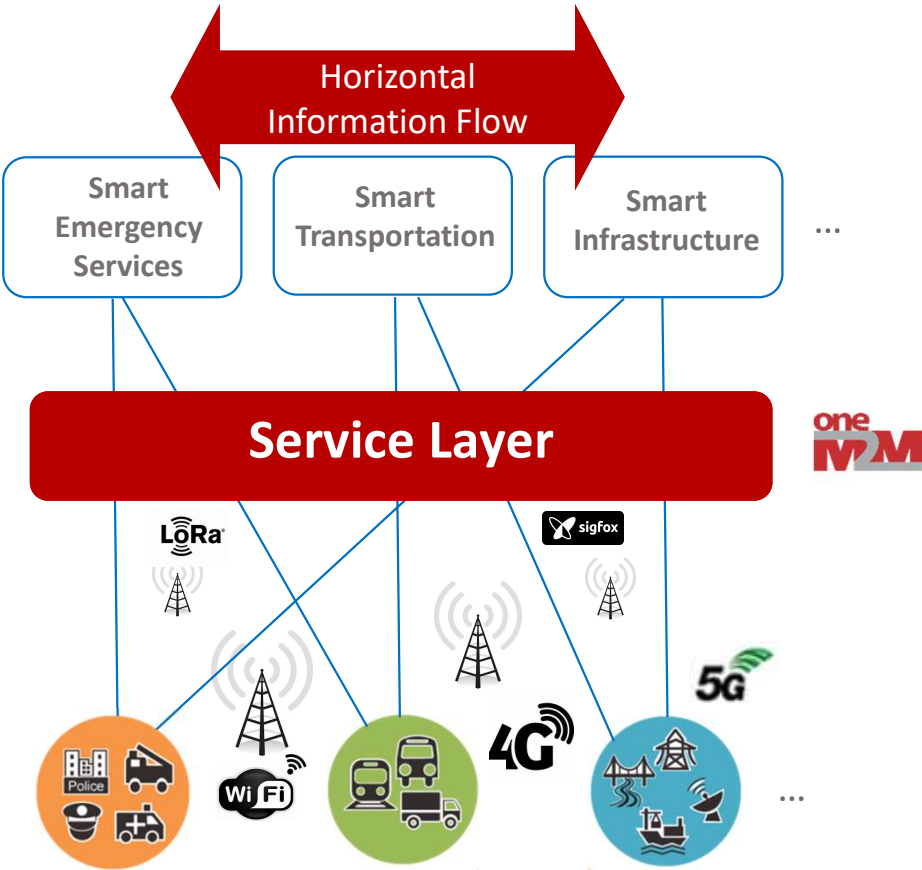
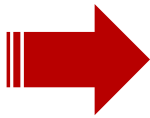
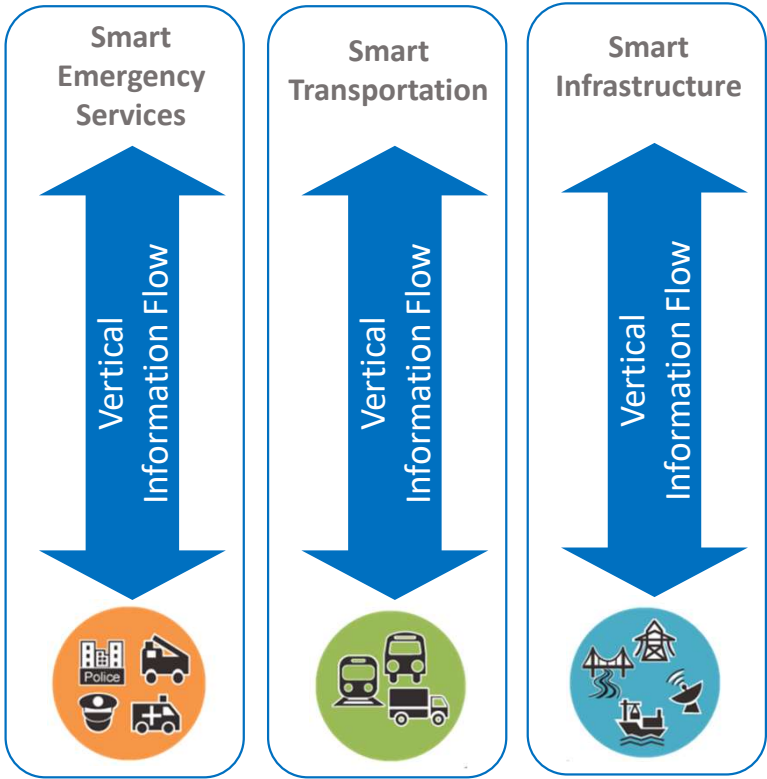


www.oneM2M.org All documents and specifications are publically available

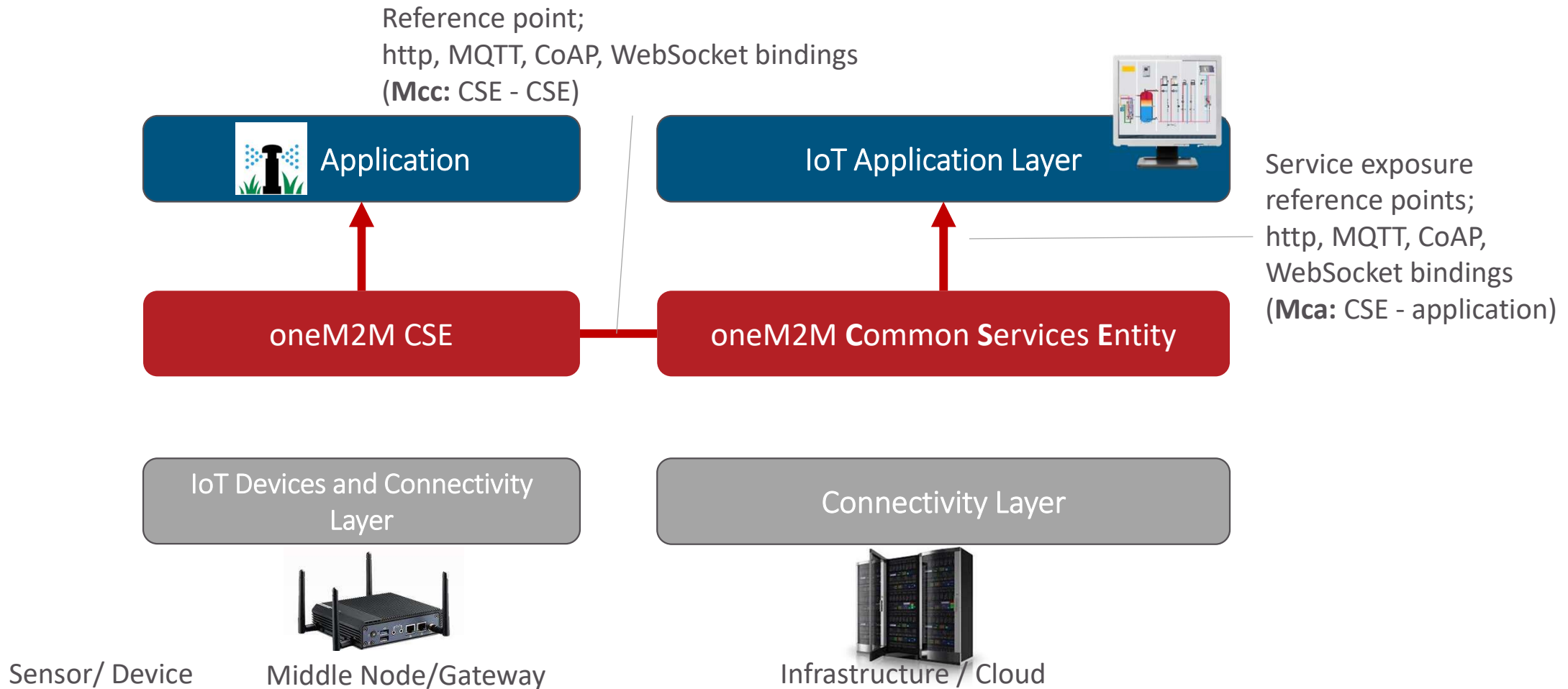
oneM2M Key-events Timeline



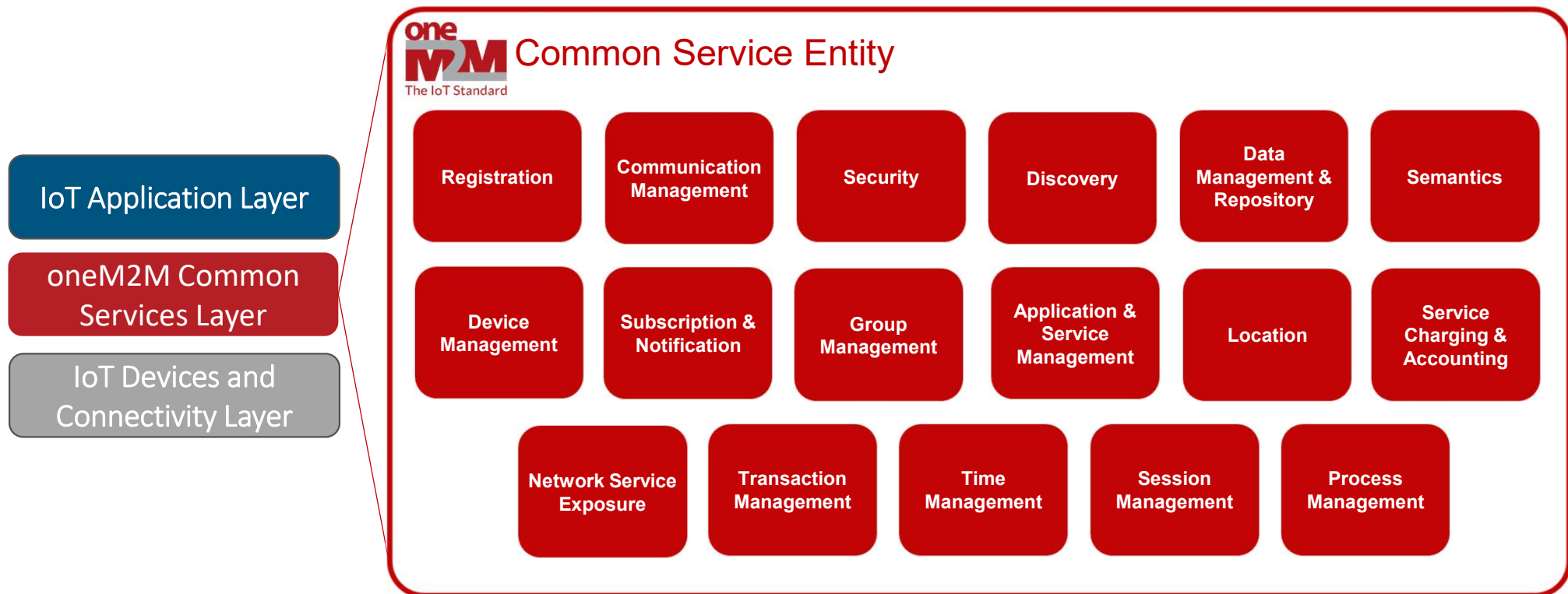
oneM2M Breaks Down the Silos



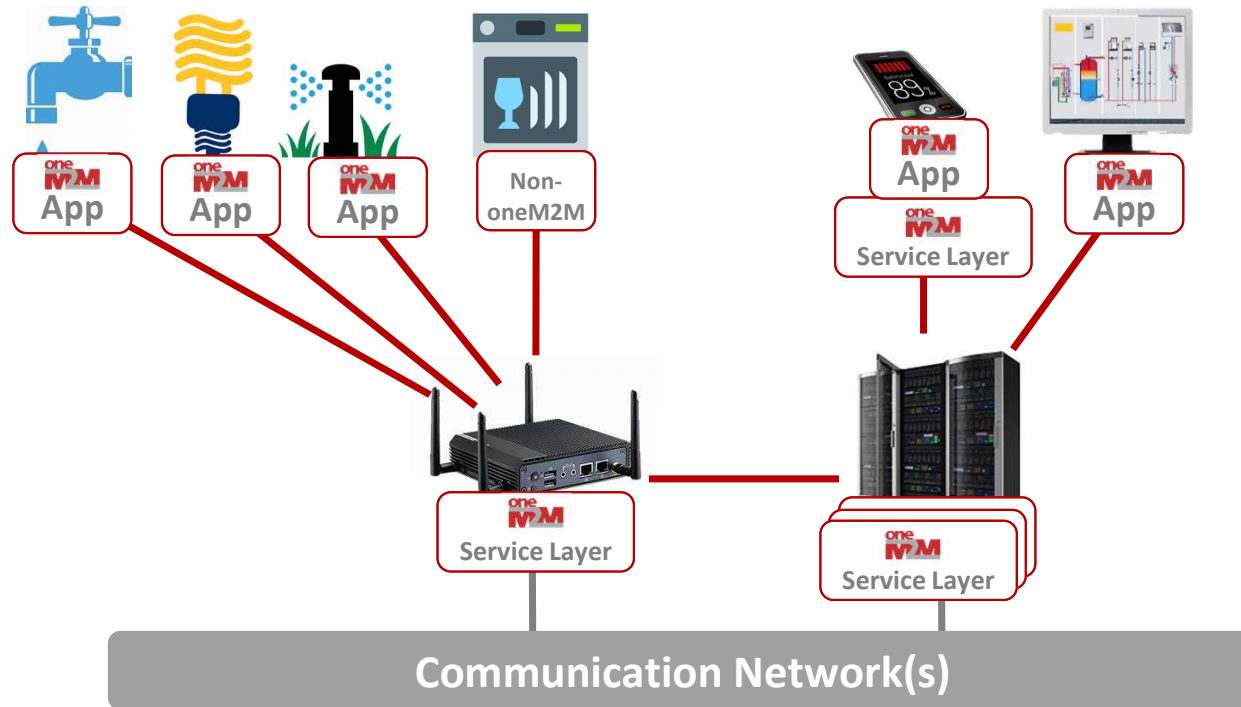
oneM2M Common Services Layer



oneM2M Common Services “Toolkit”



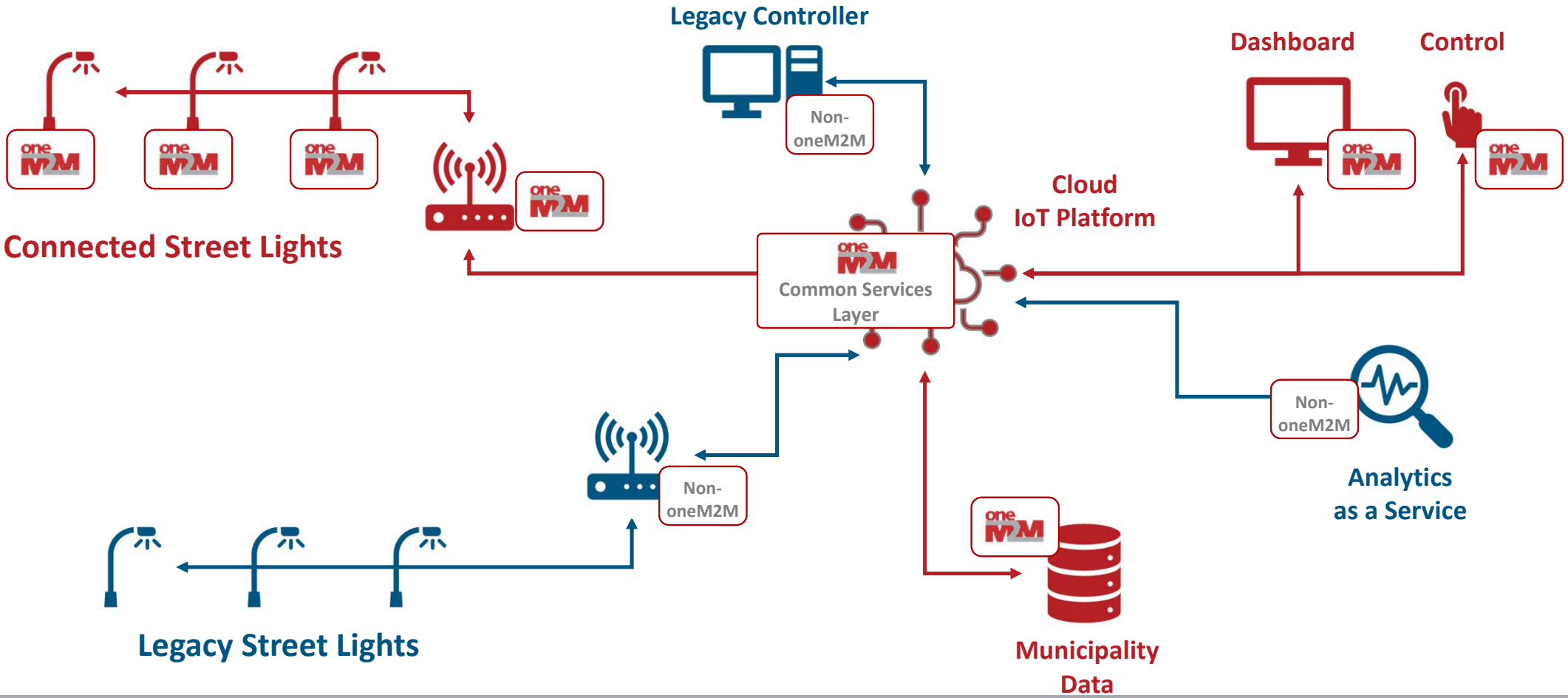
oneM2M is an End-to-End IoT Technology



A software framework with flexible deployment options

- IoT Cloud / Enterprise
- IoT Gateway
- IoT Edge Device
- IoT User Devices

oneM2M links distributed components and technologies in end-to-end IoT systems



oneM2M Feature Summary by Release

Release 1

- Registration
- Discovery
- Security
- Group Management
- Data Mgmt. & Repository
- Subscription & Notification
- Device Management
- Communication Mgmt
- Service Charging
- Network Service Exposure
- App & Service Mgmt
- HTTP/CoAP/MQTT Bindings

2015

Release 2

- + Time Series Data
- + Flexible Resources that can be customized by app developers (flex container)
- + Semantics Description & Discovery
- + Security Enhancements
 - Dynamic Authorization
 - Content Security
 - E2E Security
- + WebSocket Binding
- + Ontology for Home Area Information Model
- + oneM2M App-ID Registry
- + oneM2M Interworking
 - LWM2M
 - Alljoyn
 - 3GPP Triggering

2016

Release 3

- + Semantic Querying/Mashup
- + 3GPP SCEF Interworking
 - Non-IP Data Delivery
 - UE reachability Monitoring
 - Device triggering
 - Etc.
- + Transaction Management
- + Service Layer routing
- + Common oneM2M Interworking Framework
 - OCF
 - OPC-UA
 - OSGi
- + oneM2M Conformance Tests and Profiles
- + Security Enhancements
 - Distributed Authorization
 - etc.
- + Ontology Based Interworking

2018

Release 4

- + SDT 4.0 and the Information Models for Multiple Domains
- + oneM2M Conformance Tests
- + Geo Query
- + Process Management
- + Message Primitive Profiles
- + Semantic Reasoning
- + Time Management
- + Enhanced 3GPP Interworking
 - Session QoS
 - Congestion Monitoring
- + Fog/Edge Computing
 - Software Campaigning
 - Resource Synchronization
- + Service Subscriber Management
- + Security Enhancements
- + Group Anycast/Somecast
- + Modbus Interworking
- + Discovery Based Operations
- + Semantic OntologyMapping

2022

oneM2M Future Feature development

Release 5

Studies, Use Case and Requirements development

- AI enablement
- Information Model enhancements – SDT4.0
- Support of Data Protection Regulations
- Support of Data License Management
- Smart City and Enterprise domain enablement enhancement
- Advanced Semantic Discovery
- Additional Interworkings (e.g. OGC's Sensor Thing API)
- Effective IoT Communication to Protect 3GPP Networks (cont'd)

TECHNICAL REPORTS

REQUIREMENTS
TS-0002

TECHNICAL SPECS

oneM2M Tutorials



The first set of the **oneM2M Tutorials using Jupyter Notebooks** is now online!

oneM2M Wiki

https://wiki.onem2m.org/index.php?title=OneM2M_Jupyter_Notebooks

YouTube

https://www.youtube.com/playlist?list=PLDd4EJmw5gUnA_d1RgYnXR0rYeYuHdH5u

GitHub & Discussions

<https://github.com/oneM2M/onem2m-jupyter-notebooks>

<https://github.com/oneM2M/onem2m-jupyter-notebooks/discussions>

MyBinder Runtime

https://mybinder.org/v2/gh/oneM2M/onem2m-jupyter-notebooks/master?urlpath=lab/tree/___START___ipynb

The collage displays the tutorial's multi-media presence. On the top left is a video player for 'oneM2M Tutorials using Jupyter Notebooks'. To its right is a video playlist with four episodes: 'Introduction' (4:52), 'Setup Configurations' (5:57), 'First Contact with oneM2M' (7:48), and 'Basic Resources & Requests using REST Calls'. Below the video player is a GitHub repository page for 'oneM2M - First Contact', which includes a description of the notebook's purpose and a code snippet for initialization. On the bottom right is a screenshot of the Jupyter Notebook interface, showing the 'Initialization' section with code to set up the environment and retrieve the root CSE resource. A diagram on the right side of the notebook shows the relationship between the 'Notebook AE' and the 'CSE' resource, with a 'RETRIEVE' arrow pointing to a 'Response'.

Takeaways



oneM2M

- is a global open standard, not controlled by a single private company
- specifies a common set of horizontal IoT services
 - architecture, common services functions,
- enables data interoperability
 - Information model, semantics, ontology-based interoperability
- interworks with existing IoT technologies
- has interoperability testing and a certification program
- standardized APIs simplify the life for the IoT ecosystem
 - minimize development, deployment & maintenance costs
- is a mature and a commercially deployed technology

oneM2M release 4
Ratification: Q4 2022

Work in progress on
oneM2M Release 5

For more information ...



visit www.oneM2M.org

Executive Viewpoints - <https://onem2m.org/insights/executive-viewpoints>

oneM2M in the News - <https://onem2m.org/news-events/newsmenu/onem2m-in-the-news>

Technical Specifications - <https://onem2m.org/technical/published-drafts>

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Thank You

